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DEPARTMENT OF COMMERCE

91.2. BUREAU OF FISHERIES

Economic Circular No. 21

Issued October 14, 1916

INFORMATION CONCERNING PARASITIC WORMS IN FISH.

Health authorities in our coast cities from time to time have had their attention called to the presence of parasitic worms in fish. To dispel a reasonable doubt which arises in the minds of consumers and of health officers regarding the propriety of using as food the fish which harbor such parasites, the Bureau of Fisheries deems it proper to give publication to two statements which were prepared as a sequel to certain complaints filed with the Department of Health of New York City. The statements were prepared in response to requests from officers of that department. The first is by a special investigator, who, in the service of the Bureau of Fisheries, has had an exceptionally wide experience in the study of the parasites of fishes, having examined many thousands of specimens of many species during a long period of years. The second is by an officer of the United States Bureau of the Public Health Service, who speaks from a broad knowledge of problems of public health, as well as from a vast experience in the field of parasitology.

STATEMENT BY PROF. EDWIN LINTON, SPECIAL INVESTIGATOR OF THE BUREAU OF FISHERIES.

1. The public should know that in the order of nature there is a large number of species of animals and plants which pass all or a large part of their lives within other animals. Such forms are known as parasites.

2. No species of animal is free from parasites, and probably no individual animal is for long free from parasites.

3. Some parasitic forms, as the so-called trichinae of pork, will develop also in man. Hence the great danger of eating pork and other flesh that has not been thoroughly cooked.

4. The flesh of most species of marine food fish is notably free from parasites.

5. Complaint has been made to the New York Health Department concerning the butterfish. An inquiry into the matter has shown that the parasites complained of are roundworm, or threadworm, which, it was asserted, were found in the flesh. Very careful observations made under the direction of the United States Bureau of Fisheries justifies the following explanation of the supposed occur-

rence of roundworms, or threadworms (technically called nematodes) in the flesh of the butterfish.

(a) Such worms are of frequent occurrence on the stomach and appendages of the stomach of the butterfish and of most fishes.

(b) Careful examination of a large number of butterfish, carried on through a number of years and extending through many months of each year, resulted in the finding of only four threadworms in the flesh, one in each of four fishes out of approximately 6,000 butterfish examined.

(c) Since threadworms are not uncommon on the stomach and stomach appendages of the butterfish, and sometimes are present in considerable numbers, persons who undertake to clean fish themselves instead of having the retailer clean the fish for them, not distinguishing between threadworms on the stomach appendages and threadworms in the flesh, on account of a misapprehension of the facts, may be tempted to throw perfectly good and wholesome food away and blame, most unjustly, the market for furnishing wormy fish.

6. Emphasis must be laid on the radial difference between such cases as that furnished by butterfish that have been made the basis of complaint, and meat in which insect larvæ are developing. Unfortunately, owing to the limitations of popular speech, both might be called "wormy." In the case of the parasitic worms, their presence, still active, would be an indication that the fish is comparatively fresh. In the case of insect larvæ (maggots), no one needs to be told that their presence is very far from furnishing a guarantee that the flesh in which they are found is fresh.

7. There is no reason to believe that any of the parasites of the butterfish, or indeed, of any of our marine food fishes, can develop in any of their stages of existence in man. Of course it should by now be well understood that all danger from infection by practically all parasites that occur in food is completely removed by thorough cooking.

STATEMENT REGARDING THE NEMATODES OF BUTTERFISH, BY DR. C. W. STILES, BUREAU OF THE PUBLIC HEALTH SERVICE.

There is no ground for uneasiness in the public mind because of the presence of small threadlike nematode parasites in butterfish offered for sale as food.

These or very similar parasites are found in many different kinds of fishes, but no case is known in which they have caused disease in man nor is there any proof that they can develop in man.

Usually the parasites are encysted among the entrails of the fish, so that when the fish are cleaned the parasites are removed. In some

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instances the nematodes are found in the flesh of the fish, but when the fish are cooked the parasites will be killed.

There is no case known in which these parasites have been found alive in man, nor is any case known in which a person has been rendered ill from swallowing these nematodes in cooked or uncooked fish.

Accordingly, so far as danger of disease is concerned, there is no necessity or justification for a food inspector to condemn fish because of the presence of the little nematodes.

If fish are so heavily infested with the parasites as materially to alter the condition of the flesh and thus render it of less value or repellant to the consumer, a food inspector would be justified in condemnation only from a business or an æsthetic point of view. But if a purchaser desired to purchase fish in this condition, for his own consumption and not for sale, with full knowledge of the inferior quality of said fish, there is no sound public health reason why he should not be permitted to do so.

If the view were adopted that butterfish were to be condemned on public health grounds, solely because they contained these parasites, consistency would call for the condemnation of all fishes, fowls, game, beef, mutton, pork, etc., for no food animal is known that does not contain some kind of parasite. A course of this kind would produce much harm and no good, and could not be supported by known facts.

The condemnation of food involves a destruction of property and should be based upon practical as well as theoretical considerations.

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